# 475
## FIELD COMMUNICATOR

# Getting Started



**⚠ WARNING**

**Explosions could result in serious injury or death:**
Use in an explosive environment must be in accordance with the appropriate local, national, and international standards, codes, and practices. Please review the Reference Information and Product Certifications sections of the *475 Field Communicator User's Manual* for any restrictions associated with safe use.
**Electrical shock can result in serious injury or death.**

**⚠ WARNING**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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*FOUNDATION is a trademark of the Fieldbus Foundation.*
*IrDA is a registered trademark of the Infrared Data Association.*
*Bluetooth is a registered trademark of the Bluetooth SIG, Inc.*
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# INTRODUCTION

The *475 Field Communicator Getting Started Guide* provides basic guidelines, precautions, and setup information for the 475 Field Communicator. It does not provide in-depth instructions for configuration, diagnostics, maintenance, service, troubleshooting, or Intrinsically Safe (IS) installations. Refer to the *475 Field Communicator User's Manual* on the Resource CD or www.fieldcommunicator.com for more instructions.

The 475 Field Communicator supports HART and FOUNDATION fieldbus devices, letting you configure or troubleshoot in the field. Electronic Device Description Language (EDDL) technology enables the 475 Field Communicator to communicate with a variety of devices independent of device manufacturer.

# 475 FIELD COMMUNICATOR OVERVIEW

The portable 475 Field Communicator includes a color LCD touch screen, a Lithium Ion battery (Power Module), a SH3 processor, memory components, and integral communication and measurement circuitry.

When using the 475 Field Communicator to communicate with devices, follow all standards and procedures applicable to the location. Failure to comply may result in equipment damage and/or personal injury. Understand and comply with the sections in this manual.

## Working in a Hazardous Area

An Intrinsically Safe (IS-approved) 475 Field Communicator can be used in Zone 0 (FM and CSA only), Zone 1, or Zone 2, for Group IIC, and Class I, Division 1 and Division 2, Groups A, B, C, and D locations.

An IS-approved 475 Field Communicator may be connected to loops or segments that are attached to equipment located in Zone 0, Zone 1, Zone 2, for Group IIC; Zone 20, Zone 21, Zone 22, and Class I, Division 1 and Division 2, Groups A, B, C, and D locations.

IS-approved 475 Field Communicators are ordered with the KL option and have an additional label on the back of the communicator that lists the approvals.

**CAUTION**
You can install or remove the Li-Ion battery in a hazardous area environment. You cannot charge the battery in this environment because the power supply/charger (00375-0003-0005) is not IS-approved.

## Using the Touch Screen and Keypad

The touch screen and keypad let you select menu items and enter text. Tap the screen with the provided stylus or use the up and down arrow keys on the keypad to select a menu item. See Figure 1 for the location of the stylus. Double-tap the selected item on the screen or press the right arrow key on the keypad to open a menu item.

**CAUTION**
Contact the touch screen using blunt items only, preferably the stylus included with the 475 Field Communicator. Sharp instruments, such as screwdrivers, can damage the touch screen and void the warranty. Repairing the touch screen requires replacement of the entire display assembly, which is possible only at an authorized service center.

**Figure 1. 475 Field Communicator**



## Battery and Power Supply/Charger

Understand and follow the precautions below before using your battery or power supply/charger.

- Protect the battery and power supply/charger from moisture, and respect operating and storage temperature limits. See the *475 Field Communicator User's Manual* for temperature limits.
- Do not cover the battery or power supply/charger, subject it to prolonged periods of direct sunlight, or place it upon or next to heat-sensitive materials.
- Charge the battery with only the power supply/charger. The power supply/charger should not be used with other products. Failure to comply may permanently damage your 475 Field Communicator and void the IS approval and the warranty.
- Do not open or modify the battery or power supply/charger. There are no user-serviceable components or safety elements inside. Opening or modifying them will void the warranty and could cause personal harm.
- Follow all applicable regulations when transporting a Li-Ion battery.

### Charging the Battery

Prior to first portable use, fully charge the Li-Ion battery. The power supply/charger has a green connector to match the connector on the battery. The battery can be charged separately or while attached to the 475 Field Communicator. A full charge takes approximately two to three hours, and the 475 is fully operable when charging. An overcharge condition will not occur if power supply/charger remains connected after charging completes.

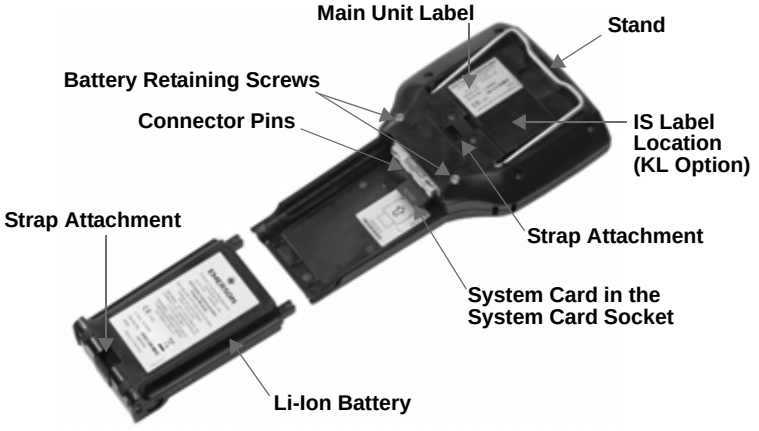
To maintain performance, charge the battery frequently, preferably after each use. Limit full discharges, if possible. Additional information about maintaining the battery is in the *475 Field Communicator User's Manual*.

### Power Supply/Charger Lights

Three colored lights are on the power supply/charger to indicate the conditions below. Each light displays a different color.

| Color | Condition |
|---|---|
| Green | The battery is fully charged. |
| Flashing green | The battery is nearly fully charged. |
| Amber | The battery is charging. |
| Flashing amber | The power supply/charger is not connected to the 475 Field Communicator. |
| Flashing amber and red | The remaining charge in the battery is low. |
| Red | Charging cannot occur. Contact Technical Support for more information. |

**Figure 2. Back of the 475 Field Communicator**




# INSTALLING THE SYSTEM CARD AND BATTERY

1. Remove the protective rubber boot, if attached.
2. Place the 475 Field Communicator face down on a level, secure surface.
3. With the battery removed, slide the Secure Digital System Card (labeled System Card), with the card contacts facing up, into the System Card socket until it clicks. The System Card socket is spring-loaded. See Figure 2 for the System Card socket location. The System Card is not locked into the System Card socket in Figure 2.

**CAUTION**
The System Card must be supplied by the 475 Field Communicator manufacturer. Failure to comply will void the IS approval.

4. With the 475 Field Communicator still face down, ensure the two battery retaining screws are loose.
5. Align the battery with the sides of 475 Field Communicator, and carefully slide the battery forward until it is secure.

**CAUTION**
The connector pins may be damaged if the battery and 475 Field Communicator are improperly aligned.

6. Carefully hand tighten the two battery retaining screws. (Do not over tighten, 0.5Nm maximum torque load.) The tops of the screws should be nearly flush with the 475 Field Communicator.

## REMOVING THE BATTERY AND SYSTEM CARD

1. Remove the protective rubber boot, if attached.
2. With the 475 Field Communicator off, place it face down on a level, secure surface.
3. Loosen the two battery retaining screws until the top of each screw is above the top of the 475 Field Communicator.
4. Slide the battery off the 475 Field Communicator.

**CAUTION**
The connector pins may be damaged if you pull the battery up rather than slide it off the 475 Field Communicator.

5. Push the System Card into the System Card socket until it clicks and releases.
6. Slide the System Card out of the System Card socket.

## STARTING THE 475 FIELD COMMUNICATOR

Before startup, ensure the 475 Field Communicator is not damaged, the battery is fully seated, all screws are sufficiently tightened, and the communication terminals are free of dirt and debris.

To start the 475 Field Communicator:

1. Press and hold the Power key on the keypad until the green light on that key blinks (approximately two seconds). During startup, the 475 Field Communicator notifies you if an upgrade on the System Card needs to be installed. The Field Communicator Main Menu displays.
2. Use the touch screen or up and down arrow keys to select menu items. To open a selected menu item, double-tap it or use the right arrow key.
3. To shut down, press the Power key and tap **Shut down** from the Power Switch screen. Tap **OK**.

## COMMUNICATING WITH PC APPLICATIONS

The IrDA interface, Bluetooth interface (if licensed), and a supported card reader let the 475 Field Communicator or its System Card communicate with a PC. See Figure 1 for the location of the IrDA interface and the System Card. A card reader can only be used with the Easy Upgrade Utility. See the *475 Field Communicator User's Manual* for more information.

# CONNECTING TO A DEVICE

Use the provided lead set to connect the 475 Field Communicator to the loop, segment, or device. Three communication terminals for the lead set are on the top of the 475 Field Communicator. Each red terminal is a positive connection for its protocol, and the black terminal is a common terminal shared by both protocols. An access door ensures that only one pair of terminals is exposed at any one time. Several markings indicate which pair of terminals is for which protocol.

Only connections to a HART loop and FOUNDATION fieldbus segment are allowed. After the device is connected, double-tap **HART Application** or **FOUNDATION Fieldbus Application** from the Field Communicator Main Menu. The appropriate device description is also required. Refer to the latest version of the *475 Field Communicator User's Manual* for details.

**CAUTION**
The 475 Field Communicator draws approximately 12 mA from the fieldbus segment. Ensure the power supply or barrier on the fieldbus segment has the capacity to provide this additional current. If a fieldbus segment is drawing near the capacity of the segment's power supply, connecting the 475 Field Communicator may result in loss of communication.

# TECHNICAL SUPPORT

Contact your supplier or go to http://www.fieldcommunicator.com for Technical Support contact information.

# MAINTENANCE AND REPAIR

Any maintenance, repair, or replacement of components not listed below must be performed by specially trained personnel at an authorized service center. You can perform common maintenance procedures listed below:

- Cleaning the exterior. Use only a dry, lint-free towel or dampen the towel with a mild soap and water solution.
- Charging, removing, and replacing the battery.
- Removing and replacing the System Card.
- Removing and replacing the stand.
- Ensuring that all exterior screws are sufficiently tightened.
- Ensuring that the communication terminal recess is free of dirt and debris.

# WASTE DISPOSAL

Products with the following label comply with the Waste Electrical and Electronic Equipment (WEEE) directive, 2002/96/EC, which applies to European Union (EU) member states only.



The label indicates this product should be recycled and not treated as household waste. Customers in EU member states should contact their Emerson sales representative for information on discarding any part of the 475 Field Communicator.

For customers in all other world areas, if it is necessary to discard any part of the 475 Field Communicator, follow the waste-disposal regulations applicable in your location.

# HAZARDOUS SUBSTANCES

Products with the following label are lead-free and comply with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) directive, 2002/95/EC, which applies to EU member states only.




The purpose of the directive is to limit the use of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB), and polybrominated diphenyl ether (PBDE) flame retardants in electronic equipment.

# PRODUCT CERTIFICATIONS

## Overview

All 475 Field Communicators have the main unit label (see Figure 2). Intrinsically Safe (KL option) 475 Field Communicators also have a label opposite the main unit label. If the 475 Field Communicator does not contain this label (NA option), it is not Intrinsically Safe. See the *475 Field Communicator User's Manual* or www.fieldcommunicator.com for additional approval information.

The Industry Canada (IC), Federal Communications Commission (FCC), and Radio and Telecommunications Terminal Equipment (R&TTE) approvals apply to only 475 Field Communicators licensed for Bluetooth.

## Approved Manufacturing Locations

Emerson Process Management — Leicester, England

## IC

This Class A digital apparatus complies with Canadian ICES-003.

## FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Any modifications made to this device that are not approved by Emerson Process Management may void the authority granted to the user by the FCC to operate this equipment.

## European Directive Information — CE Compliance

### Electromagnetic Compatibility (2004/108/EC)

Tested to the EN 61326-1 specification.

### R&TTE

This equipment is in conformity with the Radio and Telecommunications Terminal Equipment (R&TTE) Directive 1999/5/EC.

### ATEX Directive (94/9/EC) (KL option only)

Emerson Process Management complies with the ATEX Directive. Applicable standards are EN 60079-0, EN 60079-11, EN 60079-26, and EN 60079-27. Specific ATEX Directive Information is located within this document and the *475 Field Communicator User's Manual*.

## Hazardous Locations Certifications (KL option only)

The Intrinsic Safety approvals listed in this section include compliance with the FISCO requirements.

### North American Certifications

#### Factory Mutual (FM)

Intrinsically Safe for Class I, Division 1, Groups A, B, C, and D and Class I, Zone 0, AEx ia IIC T4 (Ta = 50°C) hazardous locations when connected as indicated in the control drawing 00475-1130 in the *475 Field Communicator User's Manual*. See the control drawing for input and output parameters.

#### Canadian Standards Association (CSA)

Intrinsically Safe for use in Class I, Zone 0, Ex ia IIC T4 (Ta = 50°C) hazardous locations when connected as indicated in the control drawing 00475-1130 in the *475 Field Communicator User's Manual*. See the control drawing for input and output parameters.

## International Certification

### IECEx

Certification No.: BVS 09.0012
Ex ia IIC T4 (-10°C ≤ Ta ≤ 50°C)

## European Certifications

### ATEX Intrinsic Safety

Certification No.: BVS 09 ATEX E 023
 II 2 G (1 GD) Ex ia IIC T4 (-10°C ≤ Ta ≤ +50°C)
CE 1180

### HART Intrinsically Safe Electrical Parameters

| Input Parameters | |
|---|---|
| $U_i$ | = 30 Volt DC |
| $I_i$ | = 200 mA |
| $P_i$ | = 1.0 Watt |
| $L_i$ | = 0 |
| $C_i$ | = 0 |
| **Output Parameters** | |
| $U_0$ | = 1.9 Volt DC |
| $I_0$ | = 32 µA |

### FOUNDATION fieldbus

The FISCO standard applies to the FM, CSA, IECEx, and ATEX certifications.

| Intrinsically Safe FISCO | | | | | |
|---|---|---|---|---|---|
| $U_{iIIC}$ | = 17.5 Volt DC | $I_{iIIC}$ | = 215 mA | $P_{iIIC}$ | = 1.9 Watt |
| $U_{iIIB}$ | = 17.5 Volt DC | $I_{iIIB}$ | = 380 mA | $P_{iIIB}$ | = 5.3 Watt |
| $U_0$ | = 1.9 Volt DC | $I_0$ | = 32 µA | | |
| **Intrinsically Safe Non-FISCO** | | | | | |
| $U_i$ | = 30 Volt DC | $I_i$ | = 380 mA | $P_i$ | = 1.3 Watt |
| $U_0$ | = 1.9 Volt DC | $I_0$ | = 32 µA | | |
| $L_i$ | = 0 | $C_i$ | = 0 | | |